

Amendments to the claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) An information hiding system for hiding information data within printing data disposed upon a printable media, said system comprising:

embedding means for embedding said information data within said printing data,
wherein said embedding means comprises an embedding computer upon which is stored
an embedding program means for performing the steps of:

fetching a digital image represented by pure binary code;

decomposing said digital image into a set of bit-planes;

replacing complex local portions of at least one of said bit-planes with said
information data;

composing said bit planes into an embedded image represented by pure
binary code; and

sending said embedded image to said printing means for printing onto said
printable media;

printing means for disposing said information data and said printing data upon
said printable media to form a printed matter;

extracting means for reading said printed matter and extracting said information
data from said printing data; and

outputting means for outputting said information data from said extracting means.

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Currently Amended) The information hiding system as claimed in claim 4 7, wherein said embedding program means further performs the step of transforming said digital image data from pure binary code data to gray code data.

9. (Original) The information hiding system as claimed in claim 8 wherein said embedding program means further performs the step of editing said embedded image prior to said sending step to produce a synthetic digital image for printing.

10. (Original) The information hiding system as claimed in claim 9, wherein said embedding program means further performs the step of performing a conjugation operation on said information-data prior to said replacing step.

11. (Original) The information hiding system as claimed in claim 4 wherein said extracting means comprises a scanner and an extracting computer comprising a monitor and upon which is stored an extracting program means.

12. (Original) The information hiding system as claimed in claim 11 wherein said extracting program performs the steps of:

scanning said printed matter such that it is converted into numerical data;

inputting a key into said computer;

representing said numeral data as pure binary code;

decomposing said numerical data into a set of binary images;

extracting said information data from said decomposed binary image; and

displaying said information data on said monitor.

13. (Original) The information hiding system as claimed in claim 12 wherein said extracting program performs the further step of segmenting each of said bit-planes according to a complexity measure for said numerical data.

14. (Original) The information hiding system as claimed in claim 13 wherein said extracting program performs the further step of using a conjugation map to identify a conjugated portion of said bit-planes.

15. (Currently Amended) A method for hiding and extracting information data from printing data disposed upon printed matter comprising the steps of;

embedding said information data within said printing data, wherein said embedding step comprises the steps of:

fetching a digital image represented by pure binary code;

decomposing said digital image into a set of bit-planes;

replacing complex local portions of at least one of said bit-planes with said information data;

composing said bit planes into an embedded image represented by pure binary code; and

sending said embedded image to said printing means for printing onto said printable media;

disposing said information data and said printing data upon a printable media to form said printed matter;

reading said printed matter;

extracting said information data from said printing data; and

outputting said information data extracted in said extracting step.

16. (Cancelled)

17. (Cancelled)

18. (Currently Amended) The method as claimed in claim 15 ~~17~~, wherein said embedding step comprises the step of transforming said digital image data from pure binary code data to gray code data.

19. (Original) The method as claimed in claim 18, wherein said embedding step comprises the step of editing said embedded image prior to said sending step to produce a synthetic digital image for printing.

20. (Original) The method as claimed in claim 19, wherein said embedding step comprises the step of performing a conjugation operation on said information-data prior to said replacing step.

21. (Original) The method as claimed in claim 15 wherein said extracting step comprises the steps of:

scanning said printed matter such that it is converted into numerical data;

inputting a key into said computer;

representing said numeral data as pure binary code;

decomposing said numerical data into a set of binary images;

extracting said information data from said decomposed binary image; and

displaying said information data on a monitor.

22. (Original) The method as claimed in claim 21 wherein said extracting step further comprises the step of segmenting each of said bit-planes according to a complexity measure for said numerical data.

23. (Original) The method as claimed in claim 22 wherein said extracting step further comprises the step of using a conjugation map to identify a conjugated portion of said bit-planes.

24. (New) An information hiding system for hiding information data within printing data disposed upon a printable media, said system comprising:

embedding means for embedding said information data within said printing data;

printing means for disposing said information data and said printing data upon said printable media to form a printed matter;

extracting means for reading said printed matter and extracting said information data from said printing data; and

outputting means for outputting said information data from said extracting means;

wherein said extracting means comprises a scanner and an extracting computer comprising a monitor and upon which is stored an extracting program means for:

scanning said printed matter such that it is converted into numerical data;

inputting a key into said computer;

representing said numeral data as pure binary code;

decomposing said numerical data into a set of binary images;

extracting said information data from said decomposed binary image; and

displaying said information data on said monitor.

25. (New) The information hiding system as claimed in claim 24 wherein said embedding means decomposes a digital image into a set of bit-planes, and wherein said extracting program means performs the further step of segmenting each of said bit-planes according to a complexity measure for said numerical data.

26. (New) The information hiding system as claimed in claim 25 wherein said extracting program performs the further step of using a conjugation map to identify a conjugated portion of said bit-planes.